

# River of ces

**Col. James Mudd  
District Engineer  
Rock Island District  
U.S. Army Corps of Engineers**



# Agenda

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

# Geographical Boundaries

## Mississippi Valley Division

St. Paul District

Rock Island District

St. Louis District

Memphis District

Vicksburg District

HQ Mississippi Valley Divi

New Orleans District



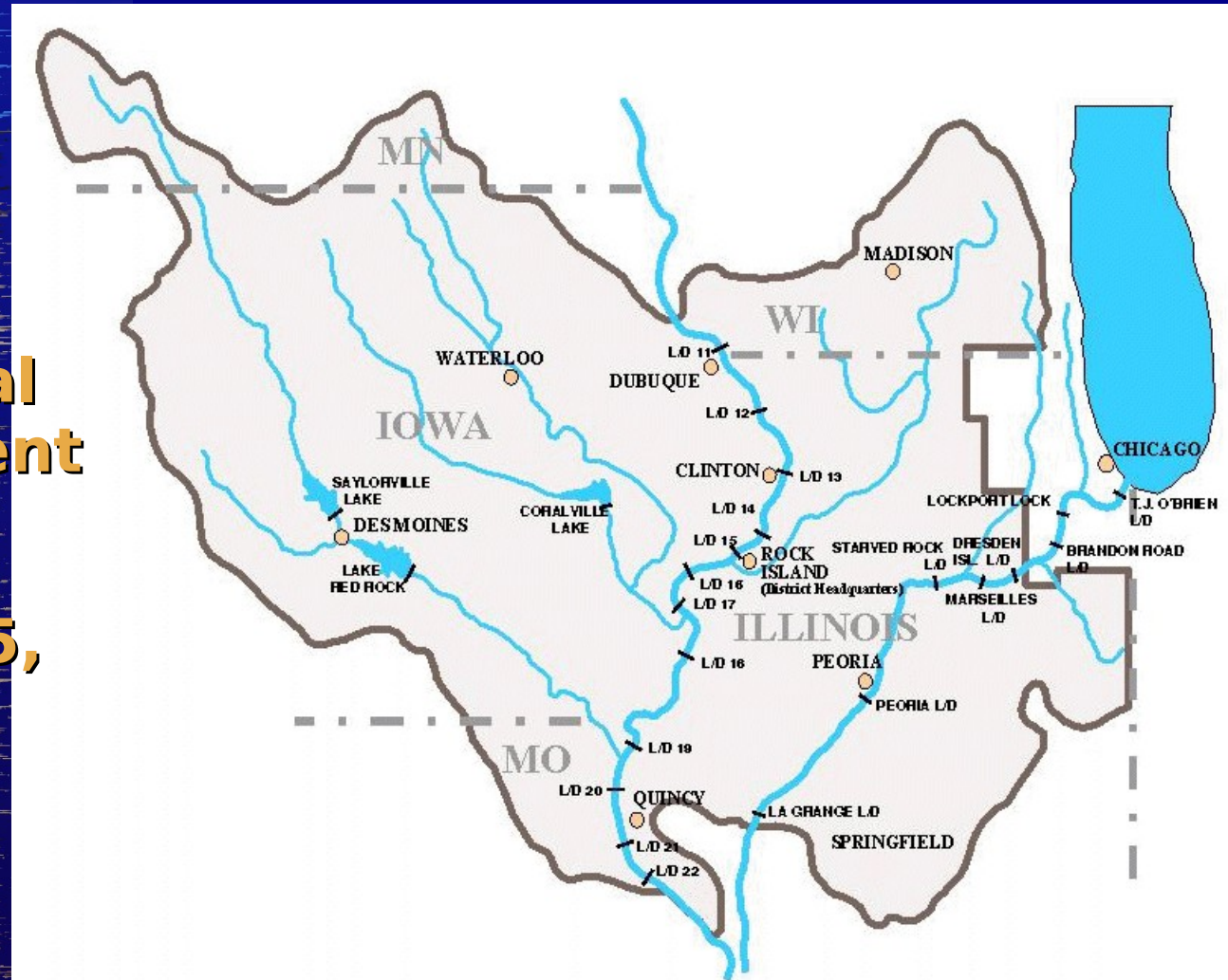
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# Agenda

# Geographical Boundaries

(Continued)

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204



# Agenda

## Authority & Scope

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Authority: Section 216 of the Flood Control Act of 1970**
- **Scope: A System Study to Examine the Feasibility of Navigation Improvements to the Upper Mississippi River & Illinois Waterway to Reduce Delays to Commercial Navigation Traffic.**



# Agenda

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

## Problems Related to Excessive Delays at Some Locks

- Increased Traffic
- Double Lockages



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# Agenda

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

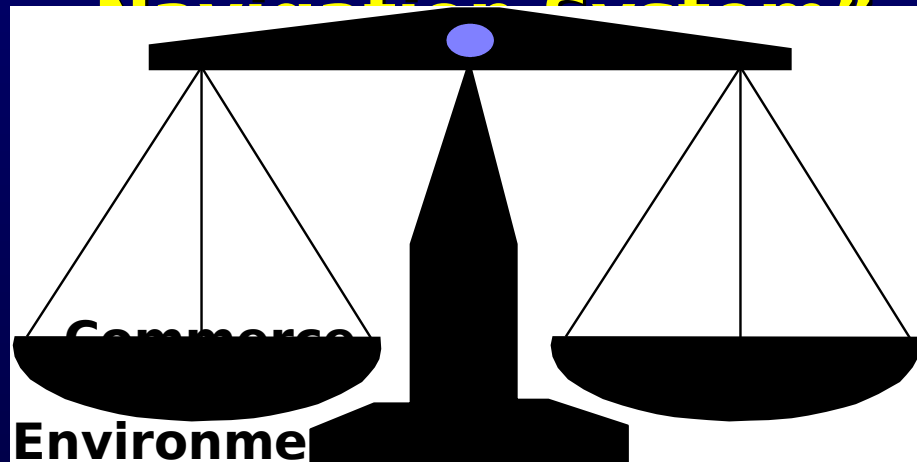


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# National Significance of Upper Mississippi River System

Congress Has Recognized the System

“As A Nationally Significant Ecosystem & A Nationally Significant Commercial Navigation System”



# Agenda

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**



## Study Area

- **37 Lock Sites**
- **1 200 Miles of**



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# Agenda

## Current Feasibility Study

### Cost Estimate

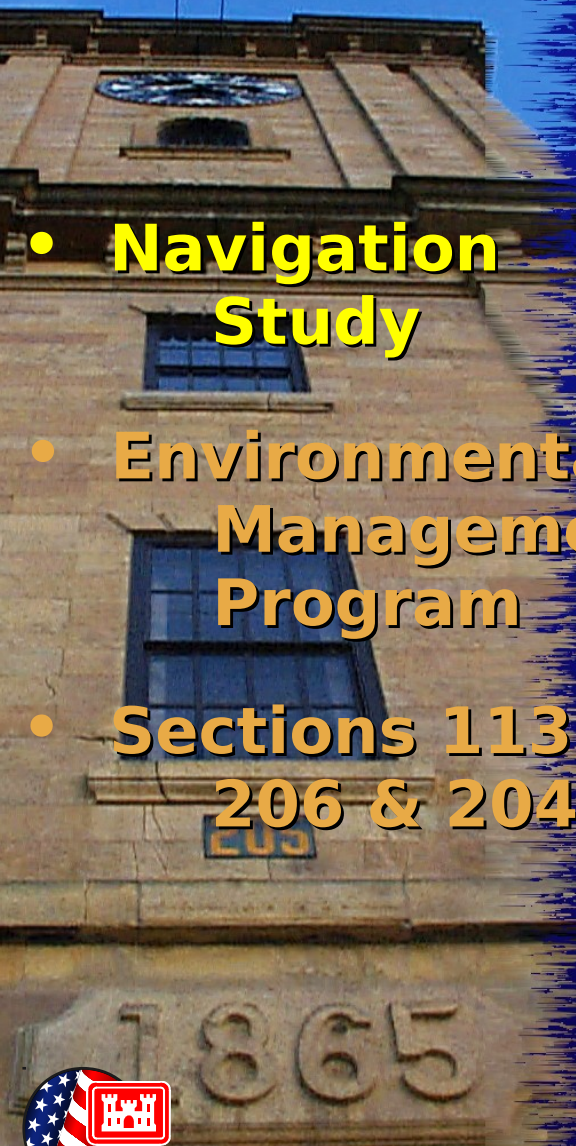
#### Work Group

|                                    |                       |                 |
|------------------------------------|-----------------------|-----------------|
| • Navigation Study                 | Current Environmental | \$23.73         |
| • Environmental Management Program | Historic Properties   | 1.35            |
|                                    | Economics             | 6.74            |
| • Sections 1135, 206 & 204         | Engineering           | 13.63           |
|                                    | Public Involvement    | 2.46            |
|                                    | Project/Study Mgmt    | 7.69            |
|                                    | <b>TOTAL</b>          | <b>\$55.60M</b> |

Schedule: December 2000 Study Completion



# **Agenda** What Have We Done?



- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Forecast Traffic & Delay**
- **Identified Potential Measures**
- **Gathered Environmental Data & Developed Evaluation Models**
- **Sought Input From**
  - **Coordinating Committees**
  - **Public Meetings**
- **Preliminary Economic Analysis**



# Agenda

## What Have We Learned?

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Environmental**
  - Collection of New and Existing Data
  - Developed Tools for System Evaluation
- **Economics**
  - Improved System Model
- **Engineering**
  - Identified Lower Cost Construction
- **Public Input**
  - Much Concern Over the Future of Our Rivers



# Agenda

## What's Next

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Completing the System Environmental Analysis - Developing Mitigation Costs**
- **Adding Public Input to the PI Formulation Process**
- **Identifying the National Economic Development (NED) Plan & Recommended Plan**



# Agenda

## Study Schedule

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Initial National Economic Development Plan & Tentatively Selected Scheduled for Discussion**
- **Feb. 16 Governors' Liaison Committee Meeting**
- **Draft Report is Scheduled for Release Summer 2000**
- **Public Meetings on Draft Report & Environmental Impact Statement in Summer 2000**
- **Final Report to Washington Dec 2000**



# Agenda

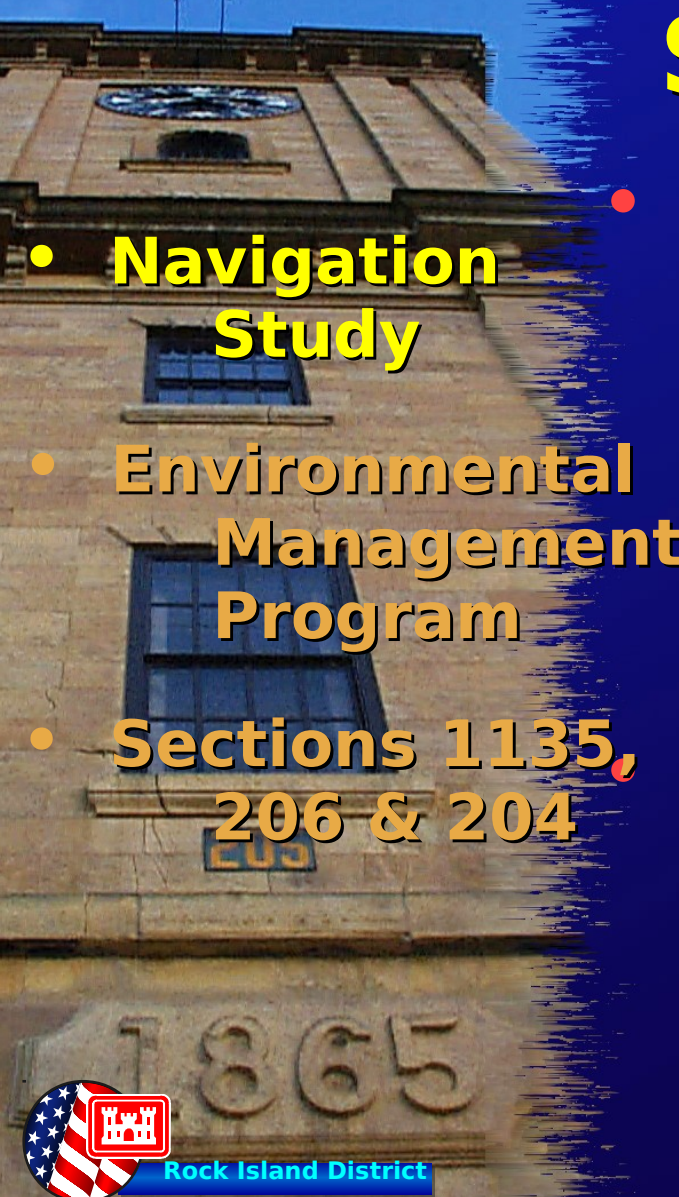
## With-Project Measures

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Large-Scale Measures**
  - **Extending the Existing Lock or New Lock Construction**
- **Small-Scale Measures**
  - **Not Involving Extending the Existing Lock or New Lock Construction**
  - **Lower Cost Items**
  - **Non-Structural & Structural**



# Agenda

## Remaining Small-Scale Measures



- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

- Guidewall Extensions with Powered Keels Mooring Facilities



# Extension of Guidewalls

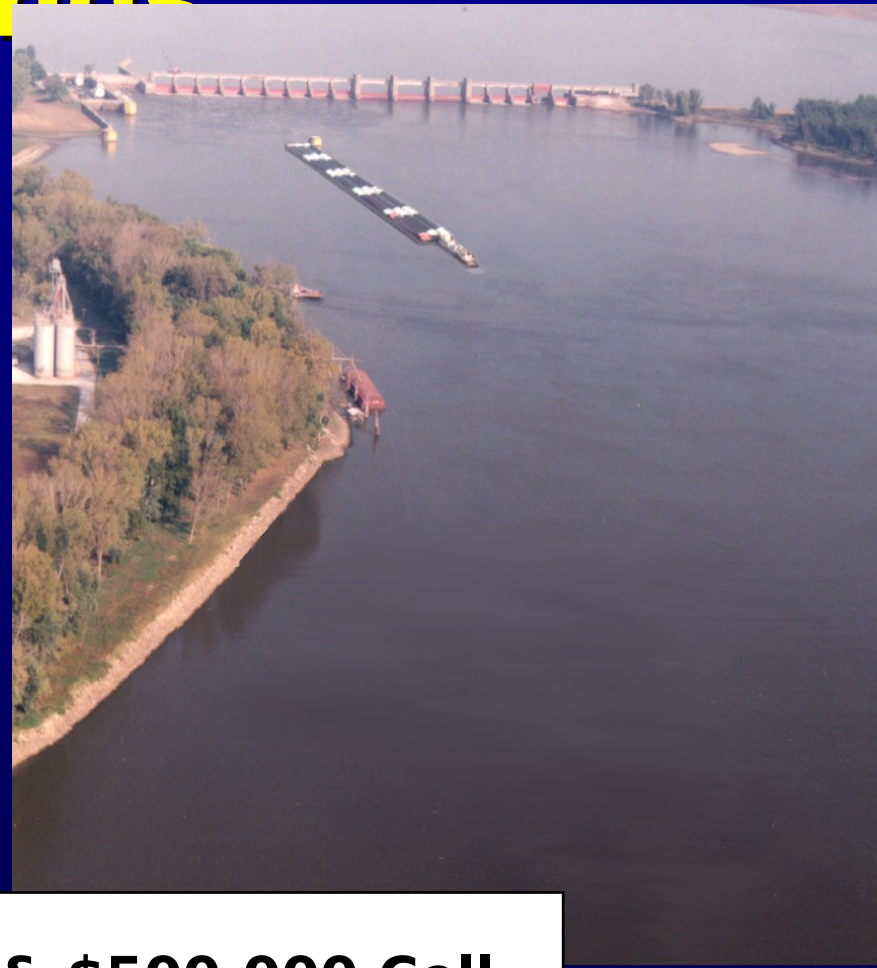
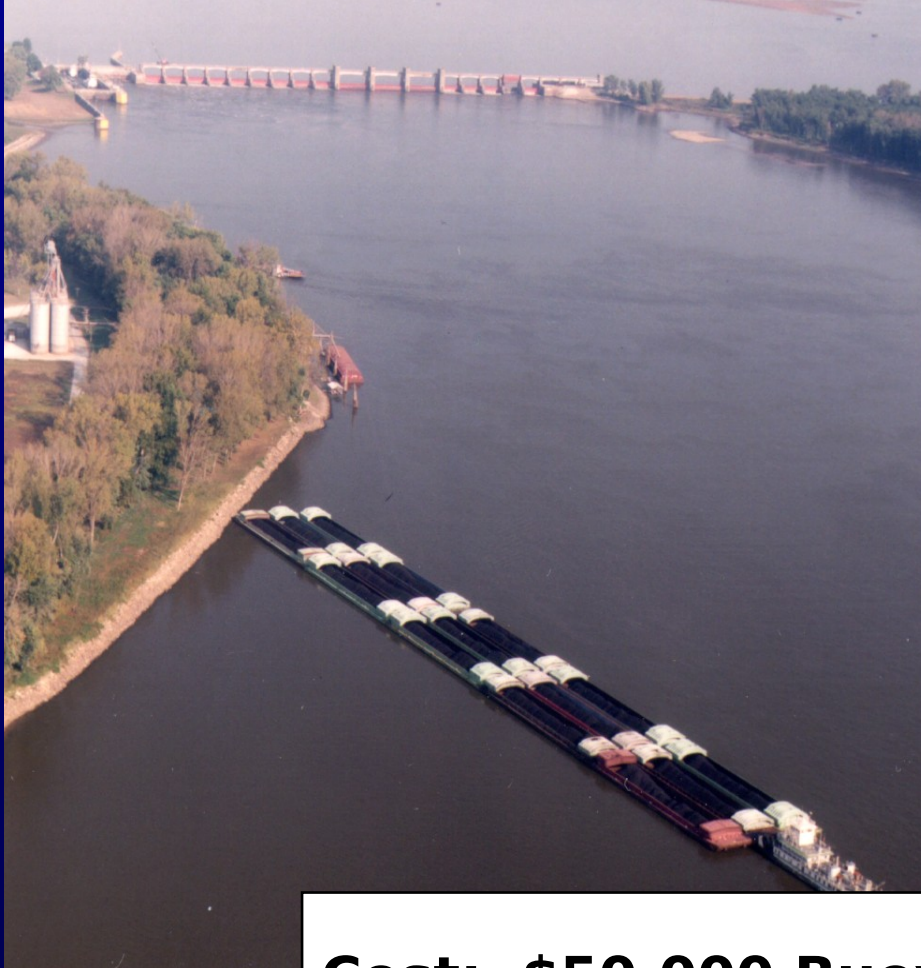


**Cost: \$30-\$40**

**Mil/Lock**

**Ext** Benefit: Lockage Time **Guidewall**  
**a** **on**

# Adjacent Mooring



**Cost: \$50,000 Buoy & \$500,000 Cell**

**Benefit: Lockage Time Reduced 5-**

**y Buoy**

# Agenda

## Large-Scale Measures

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**

- **Details Developed for 2 Representative Sites**
  - L/D 22 -- Rock Foundation
  - L/D 25 -- Pile Foundation
- **6 Alternative Locations**
- **3 Alternative Types of Lock Construction Studied at Each Location**
  - Type C: Least First-Cost Lock
  - Type B: Intermediate Cost Lock
  - Type A: Traditional Lock
- **Provides Cost & Performance Data Representative Sites**



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# Extension of Existing Lock



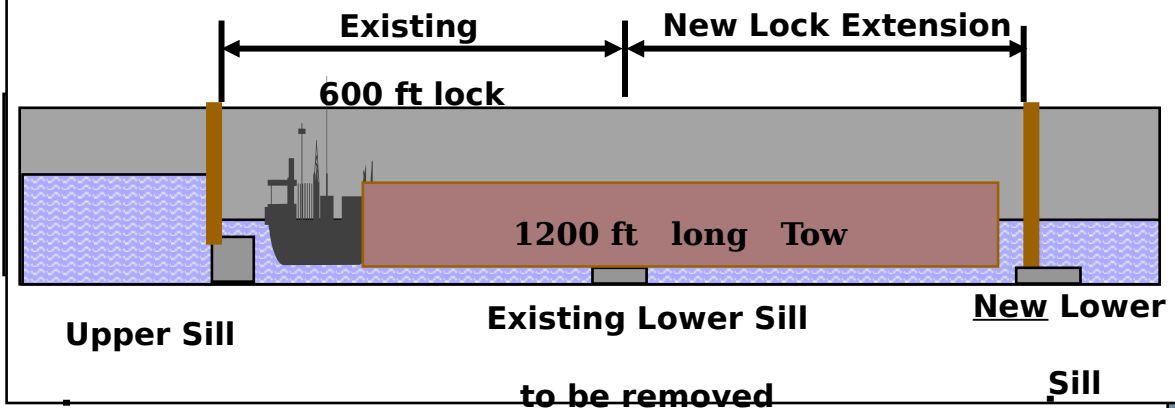
***Existing***

**Benefit: Lockage Time  
Reduced Roughly 50%**



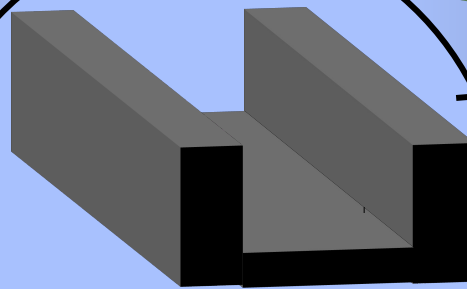
***With Lock  
Extension***

# New Sill has same clearance as existing sill



Fill 1200ft Chamber with Existing Filling

System



Float-in Gate

Add new 600ft  
Guidewall

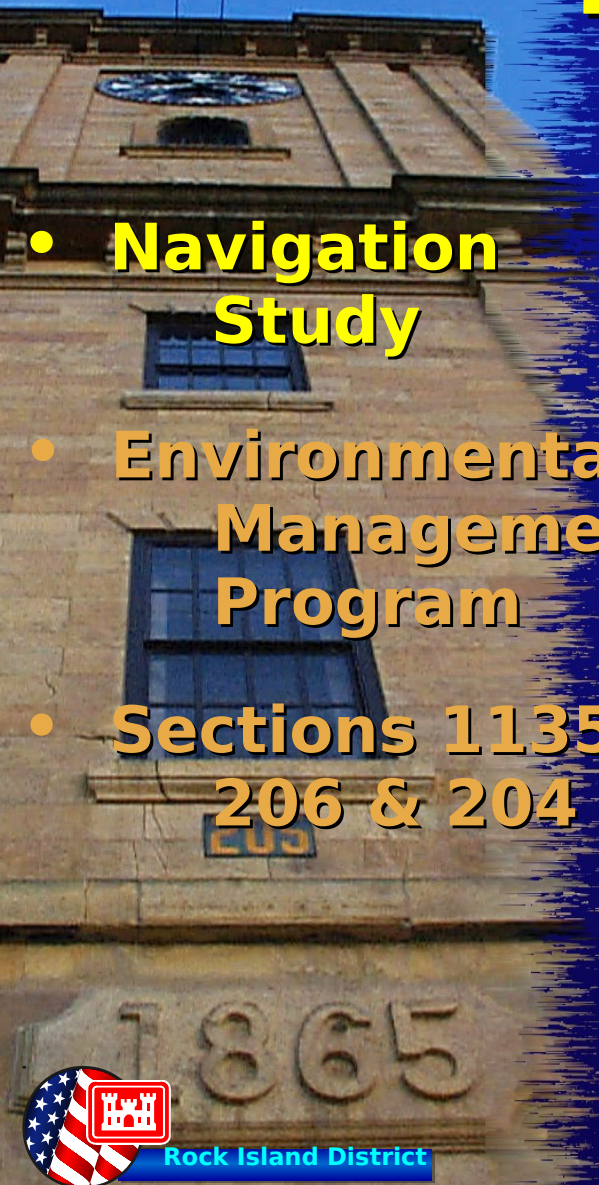
Approach  
Improvements

**Before**

**After**

# Agenda

## Remaining Measures



- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**



- **1,200 Foot Locks**
- **1,200 Foot Guideway Extensions With Powered Key**
- **Mooring Buoys/Cells**



# Alternative Plans - Build ASAP (Preliminary Figures)

| Alternative                                                                                                                                       | Begin<br>Const. | End<br>Const. | Average<br>Annual<br>Benefits | First Costs Const.<br>& Site Specific<br>Environ. Costs | Average<br>Annual<br>Costs | Benefit/Cost<br>Ratio | Average<br>Annual<br>Net Benefits |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------------------------|---------------------------------------------------------|----------------------------|-----------------------|-----------------------------------|
| <b>B</b> Mooring Cells: 12,18,20,22,24<br>Powered Kevel Guidewalls 20-25                                                                          | 2001            | 2007          | 37,770                        | 190,241                                                 | 24,860                     | 1.52                  | 12,910                            |
| <b>E</b> Mooring Cells: 12,18,20,22,24<br>Locks 20-25<br>Powered Kevel Guidewalls 14-18                                                           | 2001            | 2012          | 79,645                        | 705,875                                                 | 63,182                     | 1.26                  | 16,463                            |
| <b>F</b> Mooring Cells: 12,18,20,22,24<br>Locks 20-25<br>Powered Kevel Guidewalls 14-18,<br>Peoria,LaGrange                                       | 2001            | 2012          | 85,326                        | 765,207                                                 | 68,791                     | 1.24                  | 16,535                            |
| <b>J</b> Mooring Cells: 12,18,20,22,24<br>Locks 20-25, Peoria, LaGrange<br>Powered Kevel Guidewalls 14-18                                         | 2001            | 2014          | 98,785                        | 1,040,674                                               | 87,759                     | 1.13                  | 11,026                            |
| <i>Notes:</i><br>1200' Lock Extensions @ UMR Sites 20-25<br>1200' New Locks @ IWW Sites Peoria and LaGrange, Existing Chambers Not<br>Operational |                 |               |                               |                                                         |                            |                       |                                   |

**System Environmental Costs Not Included**

# Alternative Plans - Optimally Timed (Preliminary Figures)

| Alternative                                                                         | Begin<br>Const. | End<br>Const. | Average<br>Annual<br>Benefits | First Costs Const<br>& Site Specific<br>Environ. Costs | Average<br>Annual<br>Costs | Benefit/Cost<br>Ratio | Average<br>Annual<br>Net Benefits |
|-------------------------------------------------------------------------------------|-----------------|---------------|-------------------------------|--------------------------------------------------------|----------------------------|-----------------------|-----------------------------------|
| <b>B Mooring Cells: 12,18,20,22,24</b>                                              |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Powered Kevel Guidewalls 20-25</b>                                               |                 |               | 37,770                        | 190,241                                                | 24,860                     | 1.52                  | 12,910                            |
| <i>Mooring Cells &amp; Guidewalls 20-25</i>                                         | 2001            | 2007          |                               |                                                        |                            |                       |                                   |
| <b>E Mooring Cells: 12,18,20,22,24</b>                                              |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Locks 20-25</b>                                                                  |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Powered Kevel Guidewalls 14-18</b>                                               |                 |               | 56,678                        | 705,875                                                | 38,625                     | 1.47                  | 18,053                            |
| <i>Mooring Cells</i>                                                                | 2001            | 2003          |                               |                                                        |                            |                       |                                   |
| <i>Locks 20-25 &amp; Guidewalls 14-18</i>                                           | 2011            | 2020          |                               |                                                        |                            |                       |                                   |
| <b>F Mooring Cells: 12,18,20,22,24</b>                                              |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Locks 20-25</b>                                                                  |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Powered Kevel Guidewalls 14-18,</b>                                              |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Peoria, LaGrange</b>                                                             |                 |               | 61,611                        | 765,207                                                | 40,468                     | 1.52                  | 21,143                            |
| <i>Mooring Cells</i>                                                                | 2001            | 2003          |                               |                                                        |                            |                       |                                   |
| <i>Locks 20-25 &amp; Guidewalls 14-18</i>                                           | 2011            | 2020          |                               |                                                        |                            |                       |                                   |
| <i>Guidewalls Peoria, LaGrange</i>                                                  | 2026            | 2030          |                               |                                                        |                            |                       |                                   |
| <b>J Mooring Cells: 12,18,20,22,24</b>                                              |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Locks 20-25, Peoria, LaGrange</b>                                                |                 |               |                               |                                                        |                            |                       |                                   |
| <b>Powered Kevel Guidewalls 14-18</b>                                               |                 |               | 72,552                        | 1,040,674                                              | 51,069                     | 1.42                  | 21,483                            |
| <i>Mooring Cells</i>                                                                | 2001            | 2003          |                               |                                                        |                            |                       |                                   |
| <i>Locks 20-25 &amp; Guidewalls 14-18</i>                                           | 2011            | 2020          |                               |                                                        |                            |                       |                                   |
| <i>Locks Peoria, LaGrange</i>                                                       | 2018            | 2025          |                               |                                                        |                            |                       |                                   |
| Notes:                                                                              |                 |               |                               |                                                        |                            |                       |                                   |
| 1200' Lock Extensions @ UMR Sites 20-25                                             |                 |               |                               |                                                        |                            |                       |                                   |
| 1200' New Locks @ IWW Sites Peoria and LaGrange , Existing Chambers Not Operational |                 |               |                               |                                                        |                            |                       |                                   |

**System Environmental Costs Not Included**

# Agenda System Environmental

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**

- **Resources of Concern**
  - **Backwaters & Side Channels**
  - **Sedimentation**
  - **Plants**
  - **Mussels**
  - **Fish**
  - **Bank Erosion**
  - **Historic Properties**
- **Adaptive Mitigation Strategy**
  - **Avoid & Minimize, Implement**
  - **Monitor, Feedback**



# Agenda

## Site-Specific Environmental

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Site-Specific Habitat Assessment Report Published September 1998**
- **Quantitative Assessment at Lower 7 Lock Sites, Qualitative at Upper Sites**
- **Primary Focus on Large-Scale Measures**
- **Current Feasibility/PED Efforts Aimed at Detailed Site Assessment & Data Collection at Lower Miss. Locks, Considering All Remaining Measures**



# Regional Economic Analysis

## Total Construction Impacts

### Employment Work-Years

|           | Alt B      | Alt E      | Alt H      |
|-----------|------------|------------|------------|
| Illinois  | 1,319      | 4,897      | 7,310      |
| Iowa      | 59         | 1,213      | 1,266      |
| Minnesota | 70         | 336        | 408        |
| Missouri  | 1,256      | 3,698      | 3,783      |
| Wisconsin | <u>105</u> | <u>412</u> | <u>540</u> |
| Total US  | 5,163      | 19,282     | 24,240     |

# Regional Economic Analysis

## Annual Transportation Savings Impacts

### Employment Work-Years

|           | Alt B        | Alt E        | Alt H        |
|-----------|--------------|--------------|--------------|
| Illinois  | 302          | 708          | 885          |
| Iowa      | 104          | 247          | 282          |
| Minnesota | 136          | 321          | 369          |
| Missouri  | 122          | 282          | 340          |
| Wisconsin | 26           | 62           | 75           |
| Total US  | <u>2,036</u> | <u>4,786</u> | <u>5,606</u> |

# Agenda

## What's Next

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204
- Adding Public Input to the Plan Formulation Process



# Agenda

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

## What's Next (Continued)

- Completing the System Environmental Analysis
- Identifying the National Economic Development Plan &

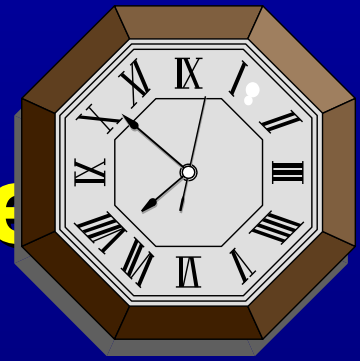
## Tentatively Selected Plan



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# Agenda

## Study Schedule



- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Tentatively Selected Plan is Scheduled for Discussion at the February Governors' Liaison Committee**
- **Draft Report is Scheduled for Release in Summer 2000**
- **Public Meetings on Draft Report & Draft Environmental Impact Statement in Summer 2000**
- **Final Report to Washington Dec 2000**



# Agenda

## For More Information

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**
- **Toll Free Telephone Number: 800/872-8822**
- **Internet Homepage Address: [www.mvr.usace.army.mil/pdw/nav\\_study](http://www.mvr.usace.army.mil/pdw/nav_study)**



# Agenda

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**



## Environmental Management Program



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# Agenda

- Navigation Study
- Environmental Management Program

• Sections 1135, 206 & 204

## Princeton Wildlife Management Area



# Agenda

## WRDA 99 Program Changes

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

### Previous

- Expired in FY 2002
- HREP \$13 Million Annually
- LTRM \$6 Million Annually

### WRDA 99

- Indefinite, but Requires Reports to Congress Every 6 Years
- HREP Cost Share = 75% Federal
- \$22.75 Million Annually
- \$10.42 Million Annually



# Agenda

## Section 1135: Project Modifications for Improvements to the Environment

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204



To restore fish and wildlife habitat  
impacted by previous Corps  
projects<sup>34</sup>



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# Agenda

## Section 1135 *(Continued)*

- Navigation Study

- Environmental Management Program

- Sections 1135, 206 & 204

- Milan Bottoms



# Agenda

## Section 206: Aquatic Ecosystem Restoration

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204



**Aquatic ecosystem  
restoration, including  
wetlands.**



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# Agenda

## Section 206 *(Continued)*

- **Navigation Study**
- **Environmental Management Program**
- **Sections 1135, 206 & 204**



- **Yellow Springs**



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# Agenda

## Section 204: Environmental Restoration Projects in Connection with Dredging

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204



To protect, restore, or create aquatic and wetland habitat in connection with dredging of a Federal navigation project



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# Agenda Section 204 *(Continued)*

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

- Barataria Bay Waterway



# Agenda

- Navigation Study
- Environmental Management Program
- Sections 1135, 206 & 204

***The End***



**E-mail Comments to:**

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1865